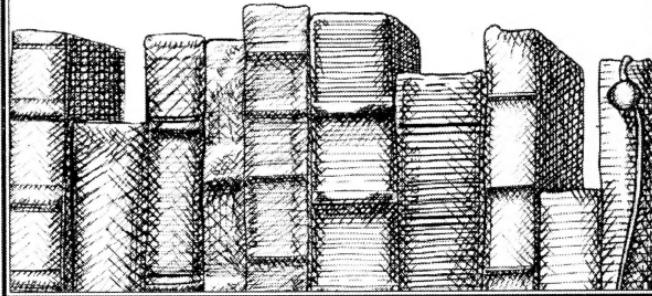


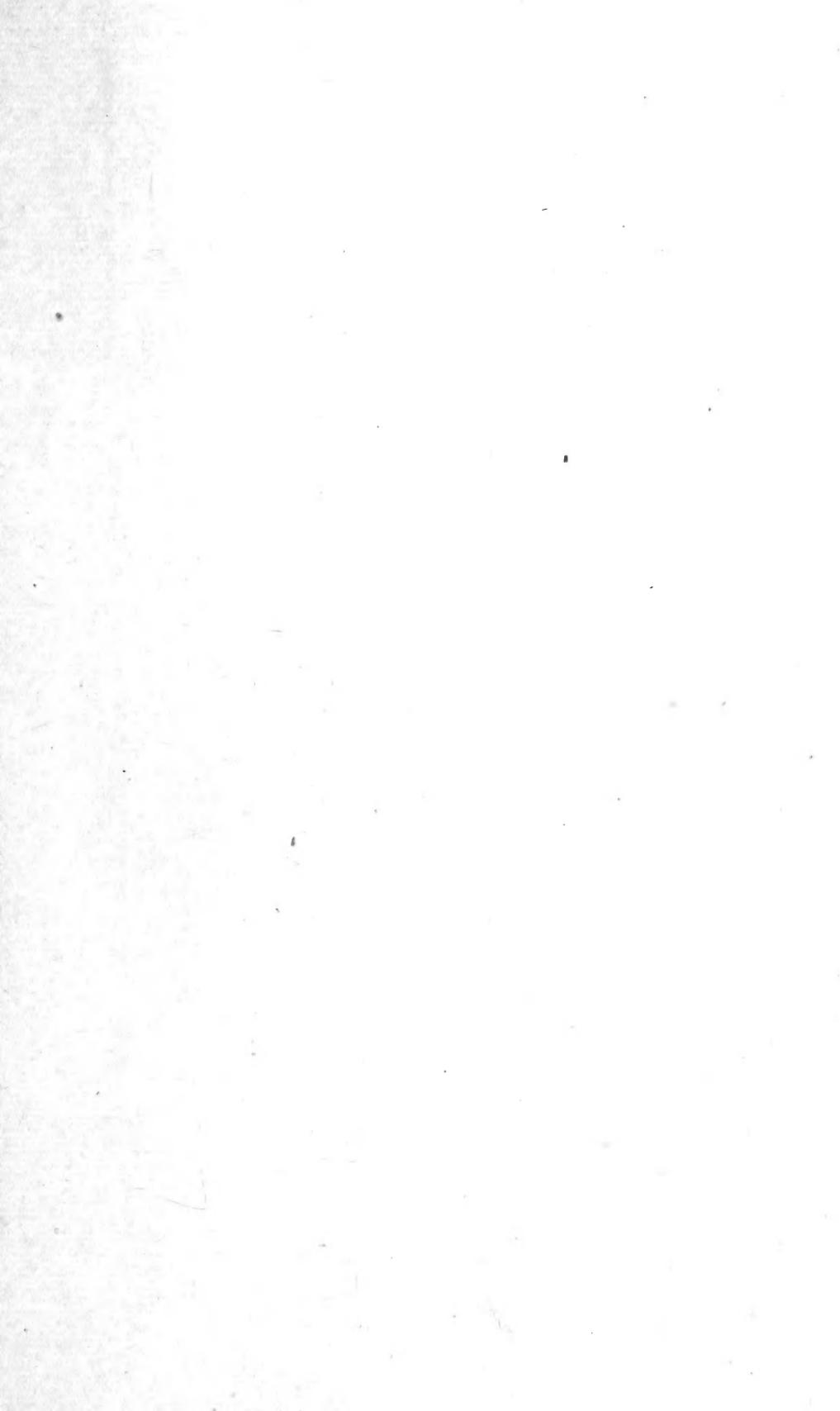


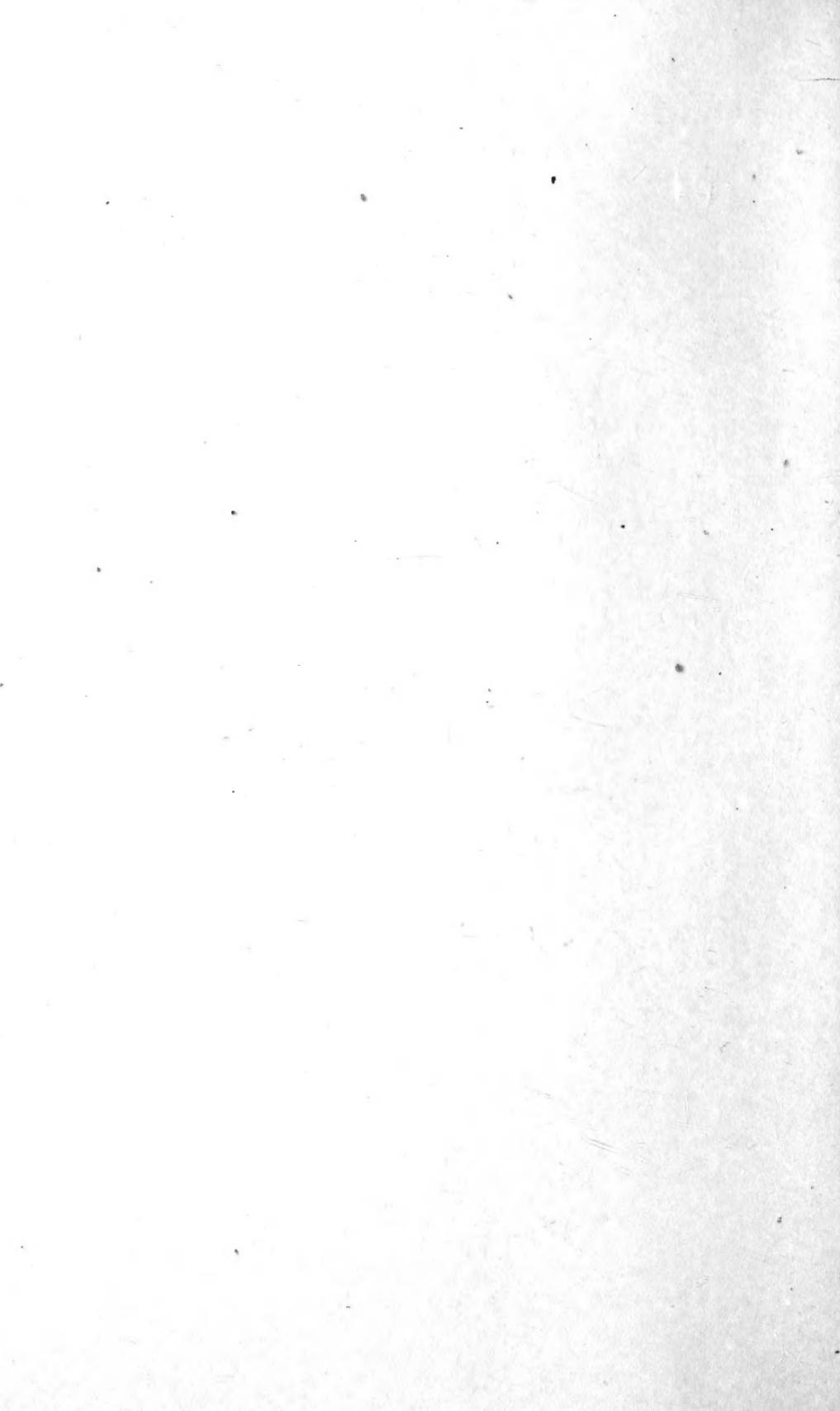
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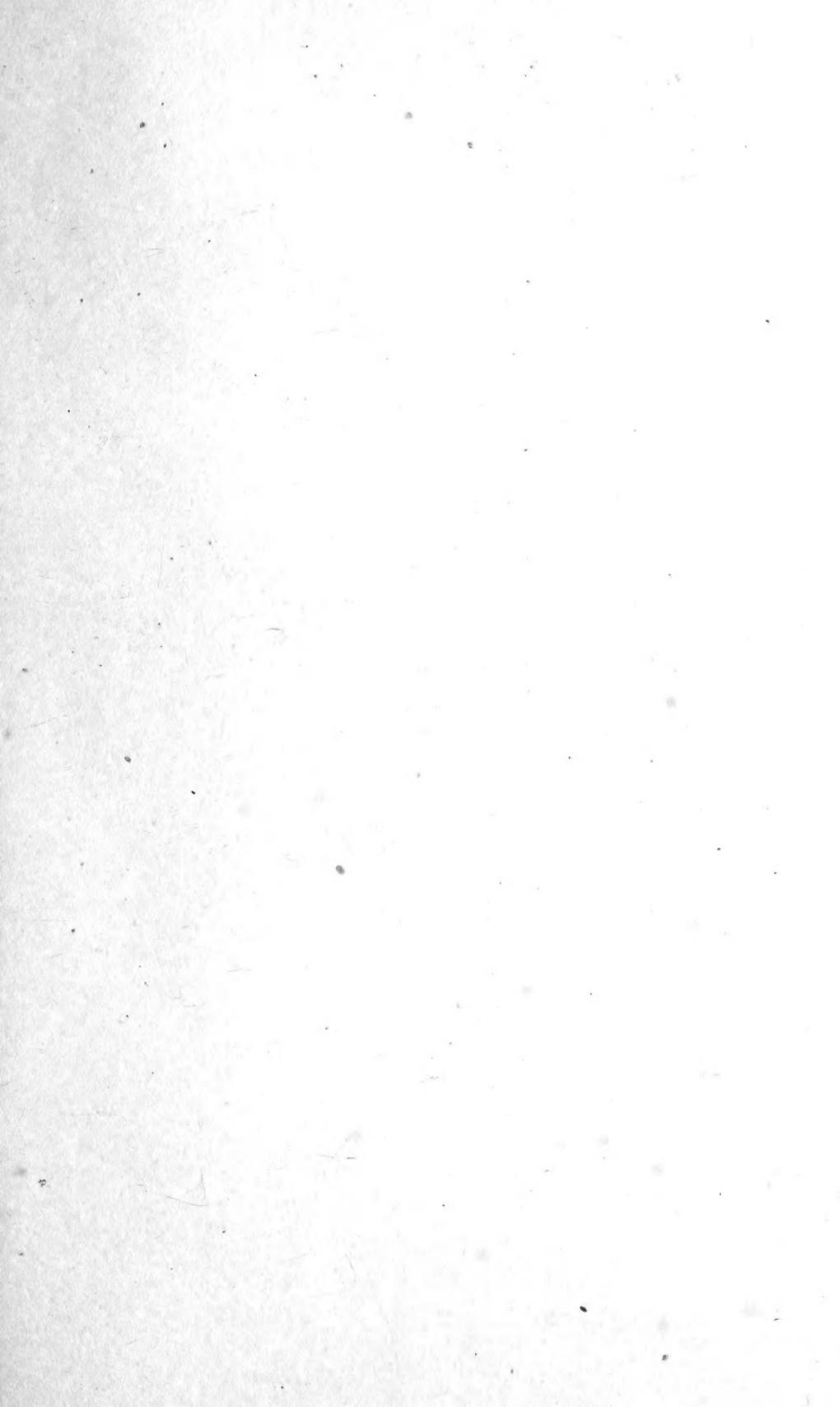
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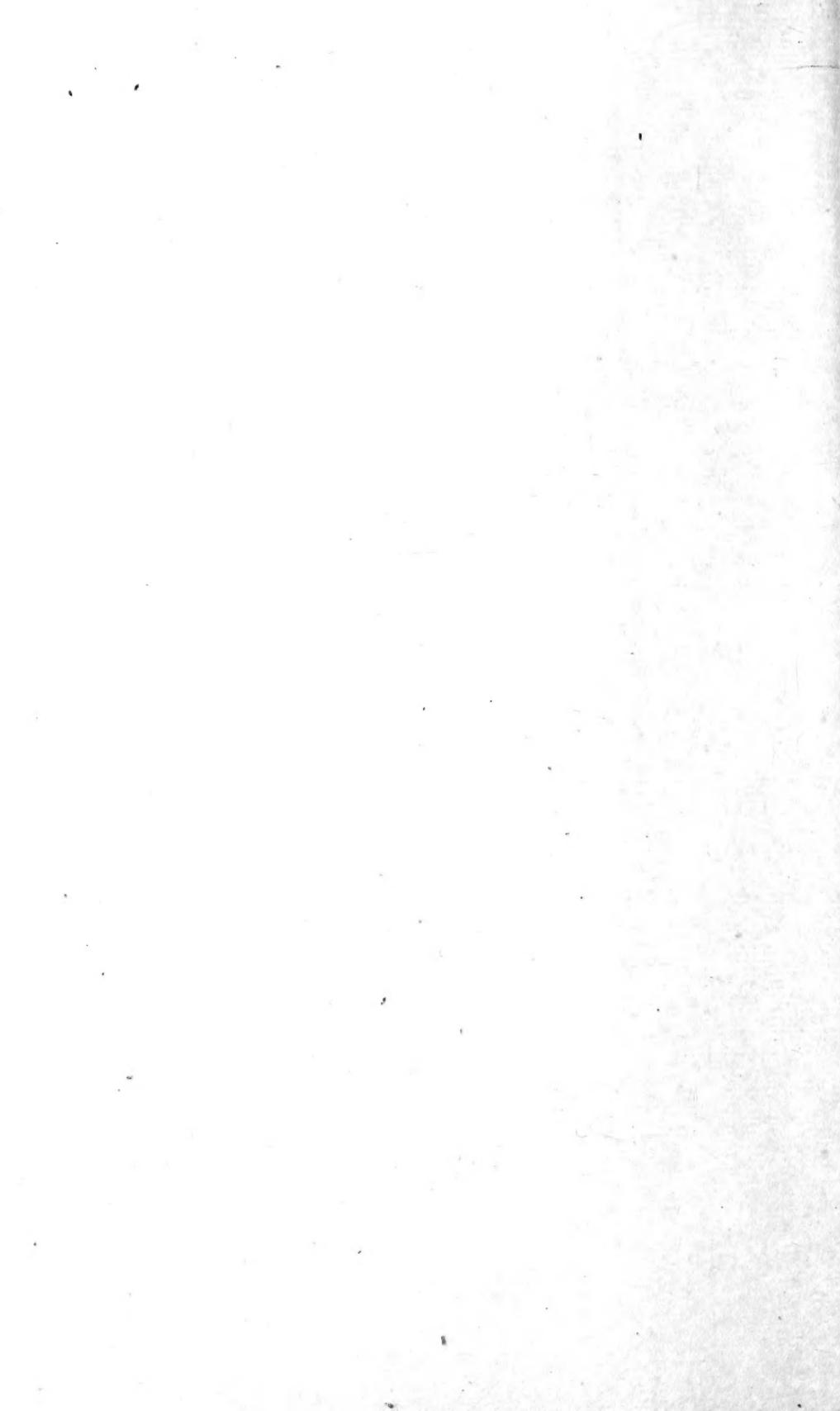
Hope Furth  
in honor of Mary Furth

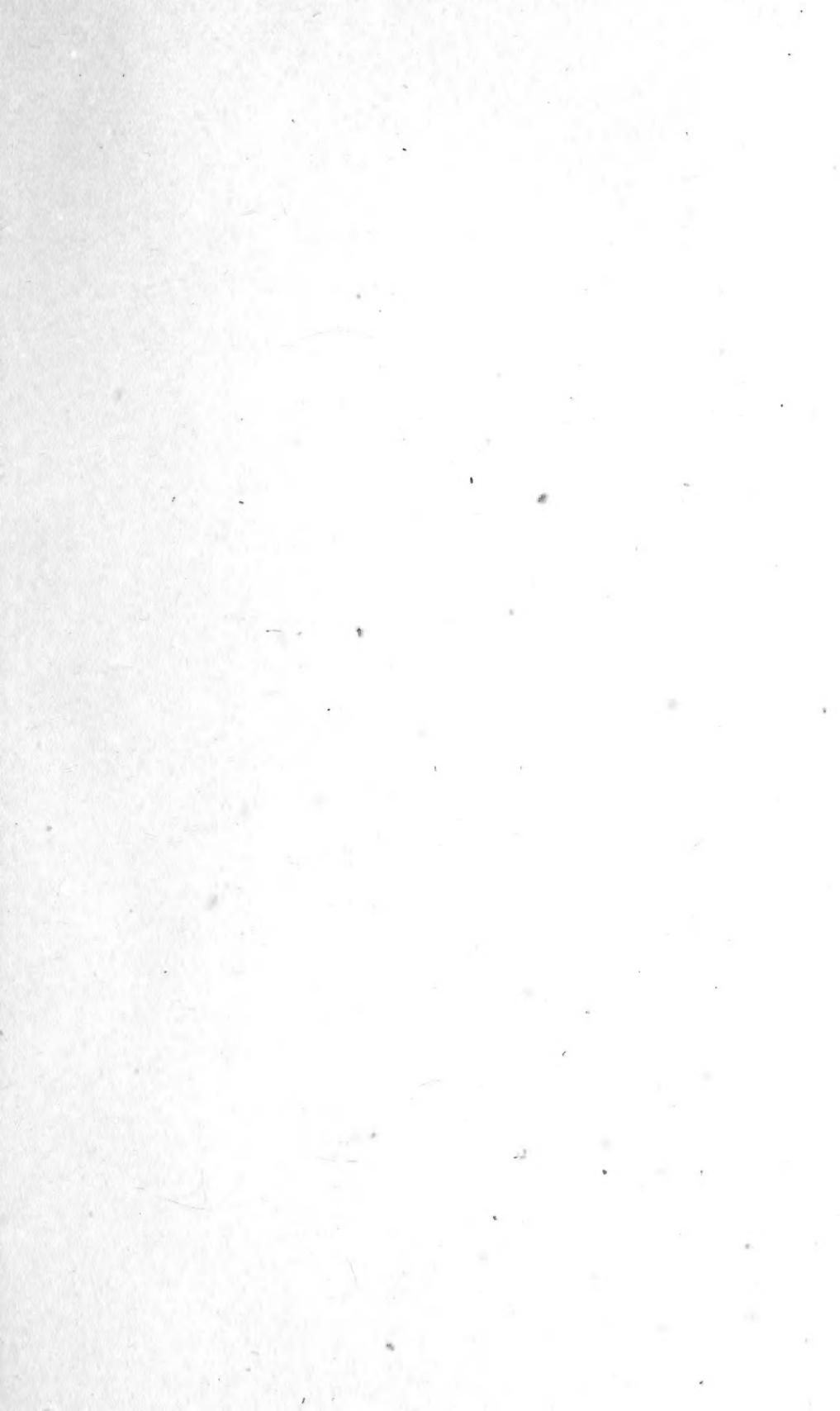


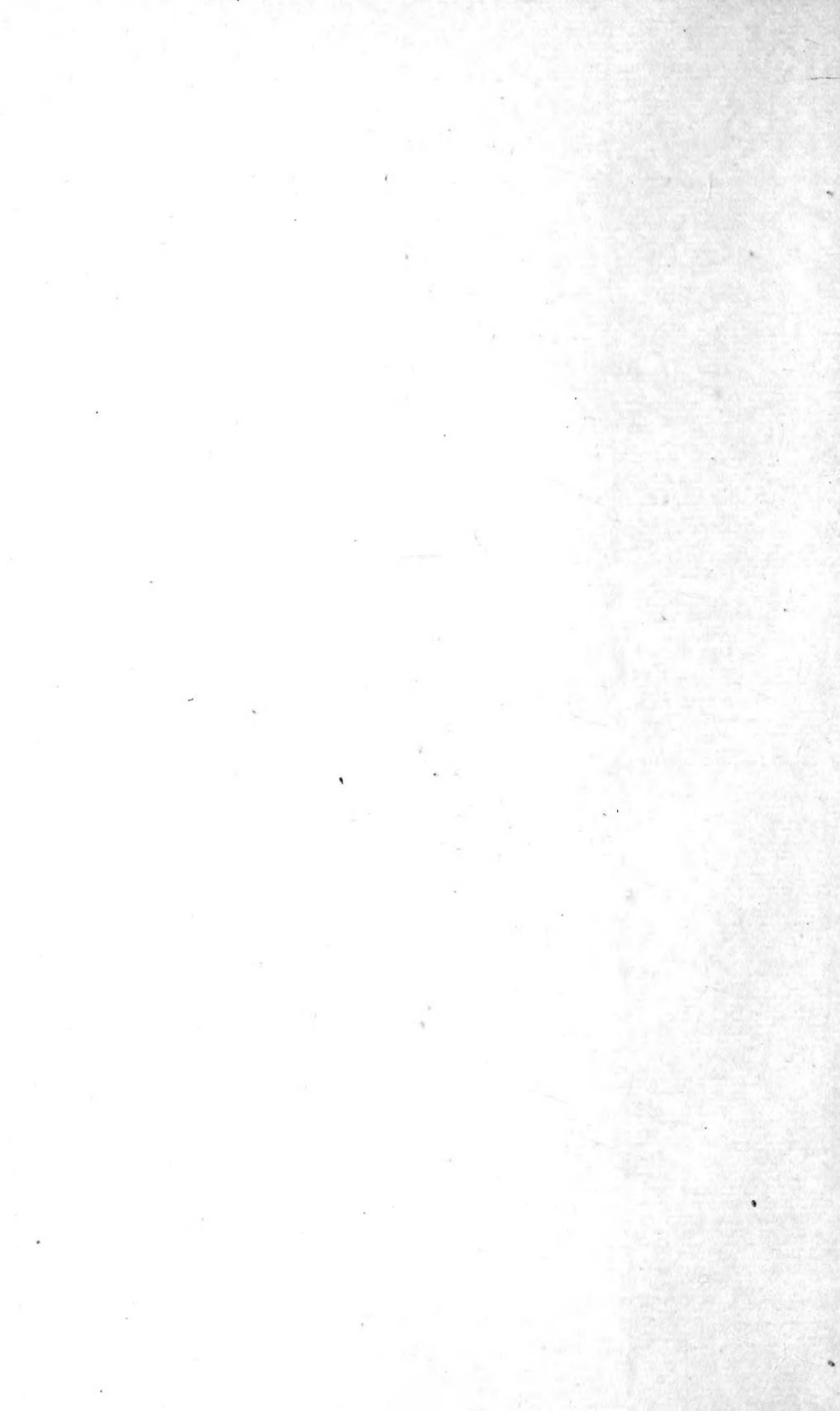












579.08

# HINTS.

FOR PRESERVING.

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## Objects of Natural History.

PREPARED

BY PROF. S. F. BAIRD,

579.08

FOR

DICKINSON COLLEGE,

CARLISLE, PA.

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## DIRECTIONS.

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### MATERIALS AND IMPLEMENTS USED.

1. The only substance which can be fully relied upon for the preservation of animal skins is arsenic.— This is to be used either dry, or mixed with water, alcohol or whiskey, to the consistence of cream, and applied to the inside of the skin. In cases where arsenic is not to be procured, recourse may be had to corrosive sublimate, copperas or sulphate of iron, alum, snuff, or any other poisonous or astringent substance. Care must be taken to wash or powder every portion of the skin, especially about the head and joints. Objects of almost any kind, and of a suitable size can be best kept in spirituous liquors, as alcohol, whiskey, brandy, rum or in spirits of turpentine. The implements necessary are, a knife, pair of scissors, needle and thread, and a hook by which to suspend the carcase of an animal while skinning it. To prepare this latter article, take a string of proper length, from one to three feet, and fasten one end of it to a stout fish hook, which has had the barb broken off. By means of a loop at the other end, you can suspend it to a nail or awl, which, when the hook is inserted into the body of an animal, will give you free use of both hands, in the operation of skinning.

## II. METHOD OF PREPARING AND PRESERVING DIFFERENT OBJECTS.

**BIRDS.**—Immediately after a bird is shot, the holes made by the shot should be plugged up, and the mouth and nostrils filled with cotton, to prevent the escape of blood and the juices of the stomach. A long narrow paper cone should be made, the bird, if small enough, thrust in head foremost, and the open end folded closer, taking care not to break or bend the tail feathers in the operation. When ready to proceed to skinning, remove the old cotton from the throat, mouth and nostrils, and replace it by fresh. Then take the dimensions, from the point of the bill to the end of the tail, from the tip of one wing to that of the other, when both are extended, and from the tip of the wing to the first or carpal joint.

This being done, make an incision through the skin only, from the lower end of the breast bone, to the anus. Should the intestines protrude in small specimens, they had better be extracted, great care being taken not to soil the feathers. Now proceed to separate the skin on each side carefully from the subjacent parts, until you reach the knee, and expose the thigh; when taking the leg in one hand, push or thrust the knee up on the abdomen, and loosen the skin around it until you can place the scissors or knife underneath and separate the joint with the accompanying muscles. Place a little cotton between the skin and body to prevent adhesion. Loosen the skin about the base of the tail, and cut through the vertebrae at the last joint taking care not to sever the bases of the quills. Suspend the body by inserting the hook into the lower part of the back or rump, and invert the skin, loosening

it carefully from the body. When you come to the wings—which had better be relaxed previously by stretching and pulling—loosen the skin from around the first bone, and cut through the middle of it, or if the bird is small enough, separate it from the next at the elbow. Arrived at this point, detach the delicate membrane of the ear from its cavity in the scull, without cutting or tearing it if possible; and then by means of the thumb nails loosen the adhesion of the skin to the other parts of the head, until you come to the very base of the mandibles, taking care to cut through the white nictitating membrane of the eye when exposed, without tearing the ball. Scoop out the eyes, and by making one cut on each side of the head through the small bone connecting the base of the lower jaw with the scull, another through the roof of the mouth at the base of the upper mandible, and between the jaws of the lower, and a fourth through the scull behind the orbits, and parallel to the roof of the mouth, you will have freed the scull from all the accompanying brain and muscle. Should anything still adhere, it may be removed separately. In making the two first cuts, care must be taken not to injure or sever the zygoma, a small bone extending from the base of the upper mandible to the base of the lower jaw bone. Clean off every particle of muscle and fat from the head and neck; and applying the preservative abundantly to the scull, inside and out, and skin, restore these parts to their natural position. In all the preceding operations, the skin should be handled as near the point of adhesion as possible, especial care being taken not to stretch it.

The next operation is to connect the two wings inside of the skin by means of a string, which should be passed between the lower ends of the two bones joining

the fore arm, previously however, cutting off the stump of the arm, if still adhering at the elbow. Tie the two ends of the string so that the wings shall be kept at the same distance apart, as when attached to the body.— Skin the leg down to the scaly part or tarsus, and remove all the muscle. Apply the arsenic to the bone and skin, and wrapping cotton round the bone, pull it back to its place. Remove all the muscle and fat which may adhere to the base of the tail or the skin ; and put on plenty of the preservative wherever this can be done. Lift up the wing, and remove the muscle from the fore arm, by making an incision along it.

The bird is now to be restored to something like its natural shape, by means of a filling of cotton or tow.— Begin by opening the mouth, and putting cotton into the orbits and upper part of the throat, until these parts have their natural shape. Next take tow or cotton and after making a roll rather less in thickness than the original neck, put it into the skin and push firmly into the base of the scull. By means of this, you can reduce or contract the neck if too much stretched. Fill the body with cotton, not quite to its original dimensions, and sew up the incision in the skin, commencing at the upper end, and passing the needle from the inside ; tie the legs and mandibles together, adjust the feathers, and after preparing a cylinder of paper the size of the bird, push the skin into it, so as to bind the wings closely to the sides. If the bird has long legs and neck, they had better be folded down over the body, and allowed to dry in that position. Economy of space is a great object in keeping skins, and such birds as herons, geese, swans, &c., occupy too much

room, when all their parts are in a natural position.

In some instances, as among the ducks, wood peckers, &c., the head is so large that the skin of the neck cannot be drawn over it. In such cases, skin the neck down to the base of the skull, and cut it off there. Then draw the head out again, and making an incision on the outside, down the back of the scull, skin the head. Be careful not to make too long a cut, and to sew up the incision again.

It is exceedingly interesting to have the nests and eggs of birds, particularly the latter. To prepare these make a small hole at each end, and suck or blow out the contents. If the egg should contain a young bird, it may be removed by making a larger hole in the side. The inside should be well washed after the operation is finished, and allowed to dry before putting away.

QUADRUPEDS.—The mode of preparing quadrupeds is precisely the same as the preceding, in all its general features. Care should be taken not to make too large an incision along the abdomen. The principal difficulty will be experienced in skinning the tail. To effect this, pass the slip knot of a piece of strong twine over the severed end of the tail, and fastening the vertebrae firmly to some support, pull the twine towards the tip, until the skin is forced off. Should the animal be large, and an abundance of preservative not at hand the skin had better remain inverted. In all cases it should be thoroughly and rapidly dried.

REPTILES AND FISH.—These may be skinned when

large, but if of convenient size had better be put into spirits, taking the precaution of making an incision into the abdomen, to allow the entrance of the liquor.

**SHELLS.**—These should be procured alive, or with the animal enclosed if possible. Bivalves are readily cleaned by opening and scraping out the contents.—Univalves should be plunged into boiling water for a few minutes; the animal can then be readily drawn out whole. Specimens of fresh water and land shells of our country, are especially desired.

**INSECTS.**—Attention should be particularly directed to the collection of coleoptera or hard shelled beetles, as these are much more easily preserved than any others. All beetles except the hairy ones, can be preserved very well in spirits, those not allowing this mode, may be twisted up in a little paper cone, and after exposure to a gentle heat for the purpose of killing it, can be put into a dry bottle or box along with others. Nearly all insects may be kept by being impaled on a pin and stuck into a box, lined with cork or soft wood. In all collections of insects there should be some strongly odoriferous substance, as camphor or turpentine, for the purpose of resisting the attacks of living ones. The collector should always carry about him, a small vial having a broad mouth, and containing a piece of camphor, or of sponge, soaked in ether, in order to contain minute beetles. They may be transferred to other bottles when dead.

Animals of the other classes in Zoology, except corals and sponges, may be preserved in spirits. Fossil

remains of all kinds, shells, fishes, trilobites, plants, &c., are of the greatest interest, and should be assiduously collected. The sculls of man and the lower animals are likewise very desirable.

PLANTS.—Specimens of plants, shrubs, trees, &c., should always be obtained. The flower is the part more especially to be selected, but this should always be accompanied by more or less of the leaves on the same stem or twig, if possible. In herbs, it is generally necessary, if it be not too large, to collect the whole plant, root and all.

The collector must have with him a quire or more of brown or other absorbing paper; old newspapers answer very well. Immediately on collecting a plant and cleansing the root, if that part be taken, it must be laid carefully between the folds of the paper, with the leaves and flowers well extended. Too many specimens must not be collected together in one bundle of paper. As soon as the collector arrives at home, he should transfer the specimens to fresh paper, and a much larger quantity, say 12 or 15 sheets, should be interposed between the specimens. Stems, or other parts that are very thick, should be split, whilst the bulbs of bulbous plants should be immersed in boiling water for a minute or two before putting up in this way. When packed, the whole should be deposited between two boards, and considerable weight or pressure applied upon them. They should not be allowed to remain in this way more than twenty-four, and if the plants be very succulent, not more than twelve hours; at the end of which time, they should be re-

moved from this paper to other that is fresh and dry, and again submitted to the same pressure. After a few days, the change may be at greater intervals, until the specimens become perfectly dry. Then they are to be removed to the paper in which they are to be permanently kept, in which condition, an interval of one sheet is sufficient between each specimen. If this care be not taken, the specimens are liable to turn black and be ruined.

As soon as a specimen is collected, a label should be prepared and placed with it, and constantly kept with it in all its transfers. This label should state the place and time of collection; whether the plant be of land or of water; if the latter, fresh or salt, the kind of soil in which it grows; its name, where found; its uses, if any; its mode of manufacture, if converted to useful, or other purposes; the color and odor of its flowers, and any thing else interesting or important connected with it.

The collector must not refuse to collect a specimen because he thinks it common at the place to which he wishss to send his collections. It is an important question to determine the geographical distribution of the vegetable kingdom, and this can only be done by knowing the various localities in which a plant may be found.

Sea weeds should be immersed a few hours in fresh water before they are put up.

If possible, the collector should obtain the fruit or seed, not only of the specimens collected, but of any other vegetable. These should be wrapped up carefully with a label. They should be retained in or accompanied by the pod, capsule, or other covering in which

they have grown, if this be not of a perishable nature De Candolle recommends that seeds from a moist country should be packed in charcoal pulverized. Seeds of an oily nature may be packed in sand, if they have to undergo long transportation. Fruits must be preserved in spirits.

A section of the trunk of any rare or interesting tree should be obtained. If the tree be not more than a foot in diameter, a section of the whole trunk may be preserved; if the diameter be greater, then the fourth or less quantity will be sufficient, being careful, however, always to embrace the pith, and to preserve the bark attached to the specimen. Its height or thickness may be about four inches. Labels should accompany each, as full in descriptien as for the specimen of plants.

CONCLUDING REMARKS.—Great care should be taken to accompany each specimen by a label, indicating the locality, date, age, and sex. A good plan is to have blank labels with strings attached, on which may be written all these particulars, with the measurements, and fastened to the animals. Animals in spirits should have bits of sheet lead attached with a number corresponding to one in a full list. Names or numbers may be written directly on eggs. These should be packed in layers, separated by cotton. Mineralogical specimens ought to be wrapped singly in paper, and in addition, enveloped in cotton when they contain delicate crystals. In packing up birds, each specimen had better be wrapped in paper separately. Skins of all kinds especially such as are expected to travel a great distance, or to be delayed on the road, should have an abundance of camphor, turpentine or snuff placed among them. Boxes should be fastened very closely

and tightly, particularly those going by sea, and care should be taken to have them put in as dry a place as possible. If coming from abroad they should have "Objects of Natural History" endorsed. This will ensure their not being opened at the Custom House







